

What is claimed is:

1. An electric motor comprising:
  - an armature having windings, the armature being constructed and arranged to rotate a shaft,
  - a commutator,
  - brushes to engage the commutator and conduct electrical current to the windings,
  - permanent magnet structure disposed about the armature,
  - a frame assembly carrying the permanent magnet structure, and
  - a coil spring structure containing iron and disposed about at least a portion of the permanent magnet structure and contacting the permanent magnet structure to define a flux path for the motor.
2. The motor of claim 1, wherein the frame assembly is composed of first and second halves, composed of non-magnetic material, joined together.
3. The motor of claim 2, wherein the first half of the frame assembly includes a plurality of protrusions extending from an edge thereof and the second half of the frame assembly includes a plurality of recesses in an edge thereof such that each recess receives an associated protrusion so that the edges are in generally abutting relation.
4. The motor of claim 1, wherein the frame assembly includes retaining tabs constructed and arranged to locate and retain the permanent magnet structure with respect to a portion of the frame assembly.
5. The motor of claim 1, wherein the coil spring structure is composed of rectangular rod steel.
6. The motor of claim 1, wherein the coil spring structure is constructed and arranged to exert a spring load to retain the permanent magnets with respect to the frame assembly.

7. The motor of claim 2, wherein the frame assembly defines brush tubes for holding the brushes, an end cap defining an end of the motor, a electrical connector body, and bearing retainers to retain bearings that support the shaft.
8. A flux path structure for an electric motor, the motor having a frame and permanent magnet structure, the flux path structure comprising a coil spring structure containing iron and disposed about and contacting the permanent magnet structure.
9. The flux path structure of claim 8, wherein the coil spring structure is constructed and arranged to exert a spring load to retain the permanent magnet structure with respect to the frame.
10. The flux path structure of claim 8, wherein the coil spring structure is composed of rectangular rod steel.
11. An electric motor comprising:
  - an armature having windings, the armature being constructed and arranged to rotate a shaft,
  - a commutator,
  - brushes to engage the commutator and conduct electrical current to the windings,
  - permanent magnet structure disposed about the armature,
  - a frame assembly carrying the permanent magnet structure, and
  - means, containing iron and disposed about at least a portion of the permanent magnet structure to define a flux path of the motor, for exerting a spring load to clamp the permanent magnet structure with respect to the frame assembly.
12. The motor of claim 11, wherein the frame assembly is composed of first and second halves, composed of non-magnetic material, joined together.

13. The motor of claim 12, wherein the first half of the frame assembly includes a plurality of protrusions extending from an edge thereof and the second half of the frame assembly includes a plurality of recesses in an edge thereof such that each recess receives an associated protrusion so that the edges are in generally abutting relation.
14. The motor of claim 12, wherein the frame assembly includes retaining tabs constructed and arranged to locate and retain the permanent magnet structure with respect to an inside portion of the frame assembly.
15. The motor of claim 11, wherein the means for exerting a spring load includes a coil spring structure.
16. The motor of claim 15, wherein the coil spring structure is constructed and arranged to exert the spring load towards an axis of rotation of a shaft of the motor.
17. A method of providing a flux path of a permanent magnet electric motor, the motor having a frame carrying a permanent magnet structure, the method including the steps of:
  - providing a coil spring structure containing iron,
  - uncoiling the coil spring structure and placing the coil spring structure over the at least a portion of a periphery of the permanent magnet structure, and
  - releasing the coil spring structure so as to contact the permanent magnet structure to define a flux path for the motor.